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SIMULATION OF HIGH TEMPERATURE FORMATION OF LARGE (2 MM) POLYSTYRENE SHELLS FROM SOLID GRANULES.

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We have previously reported[1,2] simulation results of the formation processes of polystyrene shells produced from solid granules, using our model of microballoon formation.[3] New model improvements connected with the effects of granule cooling from polymer ablation and gas evaporation due to polymer degradation are discussed briefly. A novel new model motivated by experimental observations, which assumes multiple nucleation, foam evolution and destruction, and film and fiber absorption into shell wall, is presented. Calculations using both models are compared with each other and with experimental data for small (0.5 mm) and large (2 mm) shells.

1. Yu. A. Merkuliev, et al., "Study of Production and Quality of Large Polystyrene Hollow Microspheres", in *Hollow and Solid Spheres and Microspheres - Science and Technology Associated with Their Fabrication and Application*, edited by D. L. Wilcox, et al. (Materials Research Society, Pittsburgh, PA, 1995), pp 119-124.

2. A. A. Akunets, et al., "Production of Hollow Microspheres from Solid Plastic Granules", *Fusion Technology* **28**, 1781 (1995).

3. Yu. A. Merkuliev, "Fundamentals of Hollow Microshells-Microballoons Technology", in *Laser Thermonuclear Targets and Superdurable Microballoons*, edited by A. I. Isakov, Nova Science Publishers, NY, 1996, pp 141-230.

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